

OCCASIONAL PAPERS THE MUSEUM TEXAS TECH UNIVERSITY

NUMBER 34

18 JULY 1975

A NEW SPECIES OF *EPTESICUS* FROM GUADELOUPE, LESSER ANTILLES (CHIROPTERA: VESPERTILIONIDAE)

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In the course of field studies on bats of the Antillean region, three specimens of the genus *Eptesicus* were obtained on the island of Guadeloupe in the Lesser Antilles. The nearest known populations of this genus are on Puerto Rico 500 kilometers to the west (*E. fuscus wetmorei*), on the northern coast of South America 850 kilometers to the southwest (*E. fuscus miradorensis*), and on Tobago 550 kilometers to the south (*E. brasiliensis melanopterus*). Study of the specimens from Guadeloupe reveals that they represent a distinct species that is most closely related to *Eptesicus fuscus*. This new species is named and described below.

***Eptesicus guadeloupensis*, new species**

Holotype.—Adult male, skin and skull, no. 19902 The Museum, Texas Tech University (TTU); from 2 km. S, 2 km. E Baie-Mahault, Basse-Terre, Guadeloupe; obtained on 29 July 1974 by R. J. Baker and H. H. Genoways; original no. 74M338 of J. W. Bickham; karyotype no. 8286.

Geographic distribution.—Known only from the type locality.

Diagnosis.—Largest New World member of the genus *Eptesicus*; characterized by especially large ears and long tibia.

Description.—Cranial size large, particularly reflected in measurements of cranial length (Table 1); skull similar to that of *E. fuscus* but proportionally longer and narrower (Fig. 1); ears unusually long for a North American member of the genus (Fig. 2); other external dimensions, except forearm, longer than in *E. fuscus*; membranes black; pelage black basally, both dorsally and ventrally; upperparts

TABLE 1.—External and cranial measurements of two species of the genus *Eptesicus*.

Catalog number, sex, and locality	Total Length	Length of Tail	Length of Hind Foot	Length of Ear	Length of Forearm	Length of Tibia	Greatest Length of Skull	Condylabasal Length	Zygomatic Breadth	Postorbital Breadth	Breadth of Braincase	Mastoid Breadth	Length of Max. Toothrow	Breadth across Upper Molars
<i>Eptesicus guadeloupensis</i>														
19901 TTU ♀ Guadeloupe	129	54	11	22.5	51.5	24.8	22.7	20.6	13.7	4.7	9.2	10.7	8.1	8.8
19902 TTU ♂ Guadeloupe	133	60	13	23	49.6	24.4	22.5	20.3	13.8	5.0	9.4	10.7	8.1	8.6
19903 TTU ♀ Guadeloupe	132	60	14	24	51.1	25.7	23.1	20.9	13.9	4.9	9.5	10.9	8.3	8.9
<i>Eptesicus fuscus</i>														
3929 TTU ♂ Puerto Rico	115	52	8	15	46.1	18.3	18.7	17.3	12.5	4.4	8.7	10.0	6.7	7.8
3930 TTU ♂ Puerto Rico	109	47	9	15	50.6	19.9	19.6	18.3	12.9	4.1	8.5	10.0	7.1	7.9
3952 TTU ♂ Puerto Rico	100	45	11	19	47.2	19.3	19.2	17.8	12.7	4.3	8.8	9.8	6.9	8.1
3918 TTU ♀ Puerto Rico	110	48	12	16	50.2	21.1	19.8	19.2	13.2	4.3	8.2	10.5	7.1	7.9
39163 AMNH ♀ Puerto Rico	116	49	13		49.5	19.2	19.1	17.6	12.9	4.2	8.5	9.7	7.2	8.0
39164 AMNH ♀ Puerto Rico	122	49	13		50.5	19.6	19.7	18.1	13.3	4.3	8.4		7.2	8.2
39166 AMNH ♀ Puerto Rico	125	48	13		49.7	20.9	19.4	17.6	13.2	4.2	8.4	9.9	7.1	8.0
39167 AMNH ♀ Puerto Rico	120	50	13		49.3	19.1	18.5	17.4	12.8	4.1		9.7	6.9	8.1
39168 AMNH ♀ Puerto Rico	125	49	14		50.8	21.2	19.8	18.3	13.1	4.4	8.3	10.0	7.1	8.0
74304 AMNH ♂ Guatemala	115	51	15	17	53.2		20.8		14.2	4.4		10.2	7.6	8.7
74303 AMNH ♂ Guatemala	118	50	11	14	51.7		20.5		13.3	4.4		10.0	7.6	8.2
64989 KU ♀ Guatemala	118	50	12	18	53.9		21.0		14.0	4.2		10.5	7.5	8.7
64991 KU ♀ Guatemala	126	53	11	20	51.8		21.0		13.5	4.3		10.7	7.5	8.6
13391 TTU ♂ Honduras	123	52	9	17	53.2	20.6	21.0	19.7	13.0	4.3	8.8	9.7	7.5	8.1
143003 AMNH ♀ Venezuela	122	45	14		50.4		20.4			4.2		10.1	7.5	8.1
144880 AMNH ? Venezuela							21.5		13.9	4.5		10.5	7.9	8.7
144844 AMNH ? Venezuela							20.8		13.4	4.3		10.1	7.7	8.4

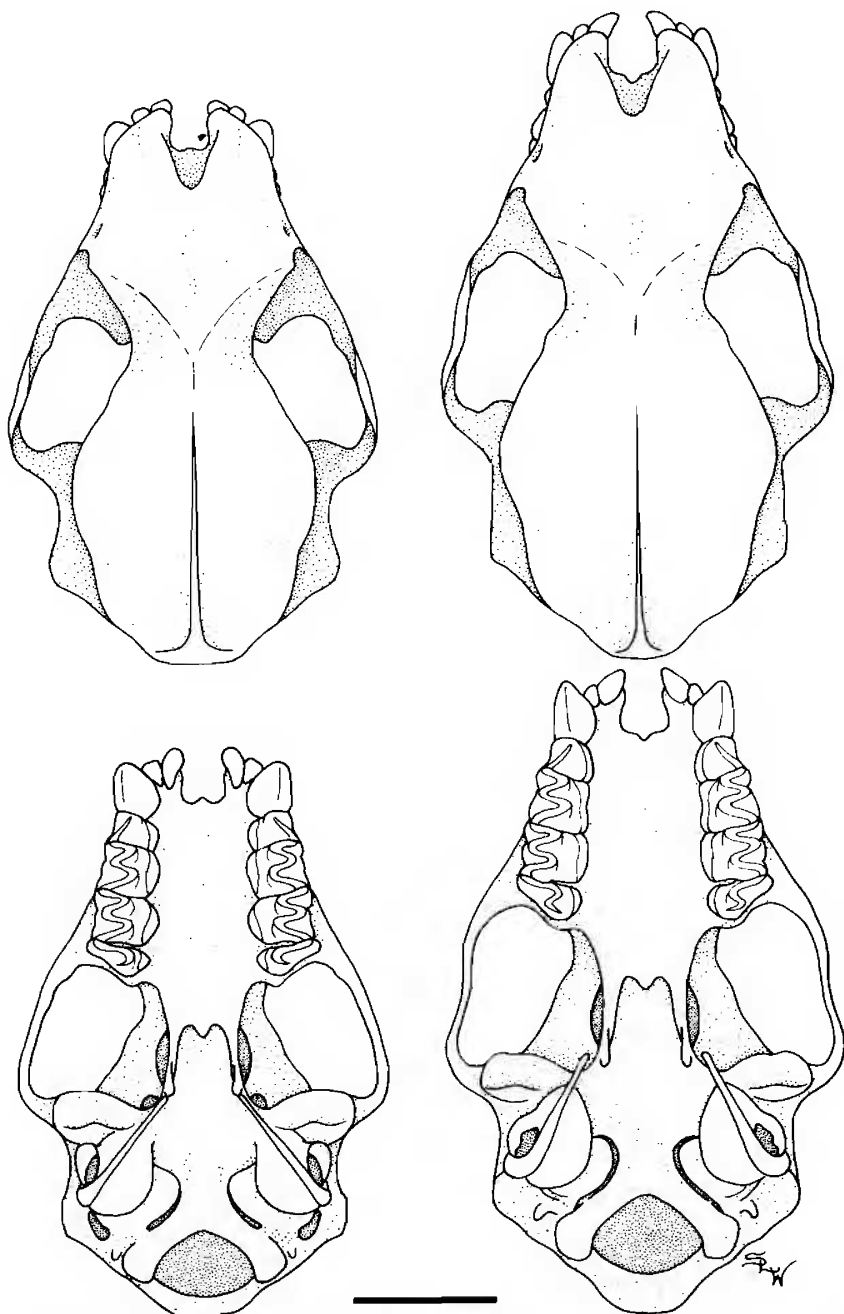


FIG. 1.—Dorsal and ventral views of the crania of *Eptesicus fuscus wetmorei* (left), TTU 8930, male, 1 mi. W Corozal, Puerto Rico, and *E. guadeloupensis* (right), TTU 19902, male, 2 km. S, 2 km. E Baie-Mahault, Basse-Terre, Guadeloupe. Scale equals five millimeters.



FIG. 2.—Photograph of the adult male holotype of *Eptesicus guadeloupensis* in life.

having hairs tipped with a dark, chocolate brown; underparts pale, hairs tipped with dark buff to almost white in some areas. Karyotype (Fig. 3) as in other members of the genus (Baker and Patton, 1967), $2N=50$, $FN=48$; all autosomes acrocentric, X-chromosome submetacentric, Y-chromosome acrocentric.

Measurements.—Measurements for the three known specimens, along with measurements of selected specimens of *E. fuscus*, are given in Table 1. For additional measurements of *E. fuscus* see Engels (1936), Villa-R. (1967), Lowery (1974), Miller (1897, 1918), and Allen and Sanborn (1937).

Comparisons.—*Eptesicus guadeloupensis* needs direct comparison only with *E. fuscus*. *E. guadeloupensis* is considerably larger than any of the other North American species in the genus and can be distinguished easily from them on size alone (see Davis, 1965, 1966).

From *E. fuscus*, *E. guadeloupensis* can be distinguished cranially by greater measurements of length (Fig. 1), which are clearly beyond the range of variation for *fuscus*. In some measurements of cranial breadth, such as zygomatic breadth, mastoid breadth, and breadth

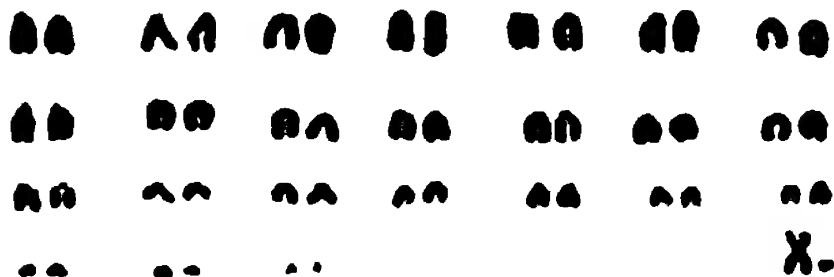


FIG. 3.—Karyotype of the adult male holotype of *Eptesicus guadeloupensis* (TTU 19902).

across upper molars, *E. guadeloupensis* is matched in size by some large individuals of *E. f. miradorensis*. Even for breadth measurements, *guadeloupensis* is at the upper range of variation for *fuscus*.

The new species has surprisingly large ears, unequaled in any population of *E. fuscus* (Fig. 2). In most other standard external measurements, *guadeloupensis* is larger than *fuscus*; this is not true, however, for the forearm, which is longer in several specimens of *E. f. miradorensis* listed in Table 1. Another unique characteristic of *guadeloupensis* is the long tibia, longer than in any population of *E. fuscus* of which we are aware (see Table 1; Miller, 1897:103; Villa-R., 1967:401). The longest tibial measurement for *Eptesicus fuscus* known to us is 22 for two specimens from Veracruz and one from Costa Rica recorded by Miller (1897:103), whereas the shortest for *E. guadeloupensis*, as can be seen in Table 1, is 24.4.

The coloration of our three specimens is somewhat variable. The holotype and one female (TTU 19903) are darker and approach the coloration of specimens of *E. f. wetmorei* examined from Puerto Rico. The other male (TTU 19901) is somewhat paler and resembles in color the single specimen of *E. f. miradorensis* examined from Honduras.

The karyotype of *E. guadeloupensis* is typical of that for other members of *Eptesicus* in North America, and reveals no unique characteristic.

Remarks.—*Eptesicus guadeloupensis* clearly is a member of the *fuscus*-group as defined by Davis (1966). The main question that then arises is whether it is conspecific with *E. fuscus* or represents a distinct species. We have chosen the latter option. However, this hypothesis cannot be tested in the usual manner for mainland populations, because interbreeding under natural conditions between insular populations is not possible, or at least highly improbable.

We have chosen to recognize *E. guadeloupensis* as a distinct species because it possesses a suite of characters that fall outside the range of variation of *Eptesicus fuscus*. Upon initial inspection, the enlarged ears are the most noticeable of these characteristics. The cranial length of *E. guadeloupensis* is greater than in *E. fuscus* although some individuals of the latter approach or match the new species in some measurements of cranial breadth. The skull of *E. guadeloupensis* thus is proportionally longer and narrower than that of *E. fuscus*. Another unique character of the new species is the unusually long tibia.

Considering the Recent distribution of the genus, two routes of invasion of Guadeloupe are possible. The nearest known population of *Eptesicus fuscus* is located on Puerto Rico 500 kilometers to the northwest and this would seem to be the most likely source of the population on Guadeloupe. However, immigration also could have come from the mainland of South America, approximately 850 kilometers to the southwest (vicinity of Caracas, Venezuela). Bats from this area more closely approach *E. guadeloupensis* in size than do specimens of *E. fuscus wetmorei* from Puerto Rico. In any case, occupation of Guadeloupe may have resulted from a steplike effect through other Lesser Antillean islands on which the genus evidently no longer occurs. In this connection, the record of *E. fuscus* from Barbados (Dobson, 1878), which generally has been discounted by recent authors (Jones and Phillips, 1970; Koopman, 1968), should be re-evaluated.

Although only three specimens of the new species were captured, we saw numerous individuals of a large vespertilionid bat flying about the forest at the type locality. Conditions under which the three examples of *E. guadeloupensis* were taken will be discussed in a future paper dealing with the bat fauna of Guadeloupe.

Specimens examined.—*Eptesicus guadeloupensis*. GUADELOUPE: 2 km. S, 2 km. E Baie-Mahault, Basse-Terre, 3 (TTU).

Eptesicus fuscus. PUERTO RICO: 1 mi. W Corozal, 2 (TTU); El Verde, 1 (TTU); El Yunque Forest, 1 (TTU); San German, 5 (AMNH). GUATEMALA: Chicharac, 1 (AMNH); 5 mi. S Guatemala City, 2 (KU); Tecpam, 1 (AMNH). HONDURAS: 10 mi. W Tegucigalpa, 1 (TTU). VENEZUELA: Carretera del Valle, 1 (AMNH); Rancho Grande, 2 (AMNH).

ACKNOWLEDGMENTS

Field work for this study was supported by a grant from the National Science Foundation (GB 41105). Laboratory phases of the investigation were supported by the Institute of Museum Research, Texas Tech University. We are particularly grateful to John W. Bickham and John C. Patton, who accompanied us during field work that

resulted in this paper. We also wish to thank Dr. Karl F. Koopman, American Museum of Natural History (AMNH), and Dr. Robert S. Hoffmann, University of Kansas (KU), for loan of comparative material.

LITERATURE CITED

- ALLEN, G. M., AND C. C. SANBORN. 1937. Notes on bats from the Bahamas. *J. Mamm.*, 18:226-228.
- BAKER, R. J., AND J. L. PATTON. 1967. Karyotypes and karyotypic variation of North American vespertilionid bats. *J. Mamm.*, 48:270-286.
- DAVIS, W. B. 1965. Review of the *Eptesicus brasiliensis* complex in Middle America with the description of a new subspecies from Costa Rica. *J. Mamm.*, 46:229-240.
- . 1966. Review of South American bats of the genus *Eptesicus*. *Southwestern Nat.*, 11:245-274.
- DOBSON, G. E. 1878. Catalogue of the Chiroptera in the collection of the British Museum. British Museum (Nat. Hist.), London, xlii + 567 pp.
- ENGELS, W. L. 1936. Distribution of races of the brown bat (*Eptesicus*) in western North America. *Amer. Midland Nat.*, 17:653-660.
- JONES, J. K., JR., AND C. J. PHILLIPS. 1970. Comments on systematics and zoogeography of bats in the Lesser Antilles. *Studies on the Fauna of Curacao and other Caribbean Islands*, 32:131-145.
- KOOPMAN, K. F. 1968. Taxonomic and distributional notes on Lesser Antillean bats. *Amer. Mus. Novit.*, 2333:1-13.
- LOWERY, G. H., JR. 1974. The mammals of Louisiana and its adjacent waters. Louisiana State Univ. Press, Baton Rouge, xxiii + 565 pp.
- MILLER, G. S., JR. 1897. Revision of the North American bats of the family Vespertilionidae. *N. Amer. Fauna*, 13:1-135.
- . 1918. Three new bats from Haiti and Santo Domingo. *Proc. Biol. Soc. Washington*, 31:39-40.
- VILLA-R., B. 1967. Los murciélagos de México. Univ. Nac. Auto. México, xvi + 491 pp.

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